

SYSTEM PROCEDURE ENGINEERING OPERATIONAL SEQUENCING SYSTEM USER'S GUIDE	S. P. NO. EUG
PROCEDURE <u>FOREWORD</u> This User's Guide provides information for the implementation and update of EOSS. It should be used to train users new to EOSS. Towards this goal, explanations are included concerning intent, structure and usage of EOSS. It also serves as a reference for updating procedures using the feedback system. <u>TABLE OF CONTENTS</u> <u>CHAPTER 1 INTRODUCTION</u> 1.1 Engineering Operational Sequencing System (EOSS) Objectives 1.2 Scope of Coverage 1.3 Authorized Configurations 1.4 Description of EOSS 1.4.1 Shipboard EOSS Package 1.5 Mandatory Use of EOSS 1.6 Conditions that Warrant Deviation from EOSS 1.6.1 Shipyard Availabilities 1.6.2 MACHALT Installations 1.6.3 Alterations Installed Outside Scheduled Availabilities 1.7 Development Assumptions 1.7.1 Parameters 1.8 Semi-Annual Update Program (SAU) 1.9 Decommissioned Ships <u>CHAPTER 2 ENGINEERING OPERATIONAL PROCEDURES (EOP)</u> 2.1 Description 2.2 Configuration 2.3 Types of EOP 2.3.1 Master Prelightoff Checklist (MLOC)	
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CHAPTER 1 INTRODUCTION

1.1 ENGINEERING OPERATIONAL SEQUENCING SYSTEM (EOSS) OBJECTIVES

EOSS provides safe, technically accurate and standardized operational and casualty control procedures tailored to the individual ship's configuration. Use of EOSS increases equipment service life and minimizes casualty occurrence by ensuring that each system or component is properly aligned, operated and secured. EOSS also ensures that shipboard training for machinery operation is standardized.

1.2 SCOPE OF COVERAGE

The Type Commanders from each coast, NAVSEA and NSWCCD-SSES Philadelphia, (formerly NAVSSES) determine the Scope of Coverage for each ship class during the EOSS development for the first ship of the class. This included which systems and equipment would be covered and what operational procedures would be needed to support them. The resultant procedures were based on appropriate plant configurations and system alignments and also what watchstations were to be used. Watchstations were based on each ship's Manning Document. EOSS also includes responses for various casualties that were determined to be the most commonly occurring. There are also procedures for additional systems and equipment that were installed on new construction ships at the request of the Ship Acquisition Program Managers.

In situations where a ship requires an operational or casualty control procedure which is not included in the current EOSS package, a local procedure should be developed using NSTM, POG, SIB and/or Technical Manual guidance. These locally developed procedures must be approved by the Commanding Officer and should state or be stamped "Locally Prepared". Some examples of commonly developed local procedures are:

- a. Auxiliary equipment EOCC.
- b. Ruptured sea water piping system.
- c. Minor brickwork failure.

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- d. High chloride level.
- e. Gauge glass rupture.

1.3 AUTHORIZED CONFIGURATIONS

The scope of coverage of EOSS does not prevent the Commanding Officer from specifying plant configurations and casualty control procedures during battle situations, restricted maneuvering or where deemed necessary. In addition, the Commanding Officer can specify special propulsion plant alignments to achieve a more economical operating mode or to operate the propulsion plant during emergency operational situations during which certain systems or equipment are out of commission. Note that the Commanding Officer may change standard equipment on a temporary basis, but not as a matter of routine or to increase redundancy.

The guide for Energy Conservation Shipboard Application, SLI01-AA-GYD-010, contains alignment status boards and nomograms to help select the most economical operating modes. The development of step-by-step, supervisory-level procedures in EOP to attain every possible condition is not considered necessary since component level procedures are provided.

EOSS is written assuming that the ship is manned in accordance with the Engineering Department Organizational Readiness Manual (EDORM) 3540.22 series at the highest manned option. The EDORM also gives the ship flexibility in manning (i.e. options for reduced manning) at the CO's discretion. Reduced manning is an option that ships may exercise. However, EOSS will remain as written to the highest manning levels. It is left to ship's force to adapt the reduced manning effort to the EOSS installed onboard.

1.4 DESCRIPTION OF EOSS

EOSS consists of procedures, charts and diagrams required for operation of a ship's propulsion plant. It consists of two parts:

- a. Engineering Operational Procedures (EOP)
- b. Engineering Operational Casualty Control (EOCC)

EOSS coverage is provided for the normal transition between steady state operating conditions, casualty restoration, and the most commonly occurring casualties. Ships are encouraged to write procedures for evolutions for which EOSS has not been installed. However, when installed, EOSS use is mandatory.

1.4.1 SHIPBOARD EOSS PACKAGE

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A shipboard EOSS package consists of one complete laminated set of EOP and EOCC procedures to be used as the on-station books in the Engineering Spaces. There is also a CD-ROM to be kept in the log room.

The Log Room copy is an information copy. This CD-ROM contains an electronic copy of EOSS for use in the Engineering Log Room. The CD-ROM allow the user to view and/or print EOSS documents for a particular ship. The CD-ROM can be used when submitting category "B" feedbacks or it can be used to print documents which can be laminated and used to replace damaged documents in the spaces. This will eliminate the need to fill out Category "A" feedbacks, thus eliminating the mail lag time to receive replacement documents. An alphabetical listing of all the documents required is provided for each revision.

The hardware installation plan (HIP) provides the ship with the size and number of bookholders required, the location of these bookholders and a listing of the books required at each watchstation.

1.5 MANDATORY USE OF EOSS

EOSS provides safe, technically sound, properly sequenced Engineering Operational Procedures (EOP) and Engineering Operational Casualty Control (EOCC) Procedures. In accordance with OPNAVINST 9200.3 series, "When EOSS has been approved and installed on your ship, it will be strictly adhered to as written." This means that, when shifting between the various steady state operating conditions (EOP), responding to a casualty (EOCC) or restoring from a casualty (EOP), the action steps in the procedure must be accomplished, as written and in the stated sequence, without deviation.

The level of proficiency of the watchstander will determine how a particular EOP procedure will be "Strictly adhered to as written". After being ordered to carry out a section of a procedure (aligning for operation, starting, stopping, etc.) the inexperienced watchstander shall read the entire section before accomplishing any of the actions specified. Then the watchstander shall read each action step in the section immediately before it is accomplished. After all required action steps in the section are accomplished, the section should be re-read to ensure all required actions have been accomplished in the proper order.

Repeated use of EOP to operate the propulsion plant will increase the watchstander's level of proficiency. As a result, the manner in which the watchstander strictly adheres to the EOP will change. The more proficient watchstander is still required to review each section before any actions are carried out. However, several action steps (in the case of short procedures, the entire section) may be accomplished before referring to the procedure. The section should be re-read after it is accomplished.

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At the highest level of proficiency, the watchstander will utilize the procedure as a checkoff sheet, ensuring that all required actions are accomplished in the correct sequence. However, no matter how experienced or knowledgeable the watchstander becomes, the EOP should be reviewed prior to accomplishing the required procedure and it should be read again after the procedure is accomplished to ensure that all required actions have been completed.

The philosophy for "strictly adhering" to EOCC is different because of the following:

1. The Symptoms/Indications, Possible Causes and Possible Effects of a casualty must be known and understood.
2. The Controlling and Immediate Actions sections of EOCC must be memorized.
3. The Stopping during a Casualty sections of designated EOP procedures must be memorized.
4. The location and operation of designated valves and components must be fully understood.

After Controlling and Immediate Actions are taken, these sections of the procedures should be read as soon as feasible to ensure that all required actions have been accomplished. The procedure should then be used to accomplish the Supplementary Actions and Restore Casualty sections. As in the case of EOP procedures, the watchstander should review Supplementary Actions and Restore Casualty sections before these actions are carried out. However, as a watchstander's proficiency increases, several action steps can be accomplished before referring to the procedure. The sections should be re-read after they are accomplished. At the highest level of proficiency, the watchstander will utilize these sections as a checkoff sheet, ensuring that all required actions are accomplished in the correct sequence.

The watchstander should be indoctrinated using the EOSS User's Guide before standing watch.

1.6 CONDITIONS THAT WARRANT DEVIATION FROM EOSS

There are conditions which warrant deviation from strict adherence to EOSS. Each change to EOSS must be authorized by the Commanding Officer with either a signature on the bottom of each procedure or a cover letter explaining the authorized change. It is recommended that the ship keep track of these deviations:

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1. Deviation is authorized when it is determined that adherence to EOSS may endanger personnel or damage equipment. In these cases, the EOSS shall be marked-up to reflect the necessary changes. These changes shall be reported via priority Naval message to NAVSURFWARCEN SHIPSYSENGSTA PHILADELPHIA PA as indicated in Chapter 6 of this User's Guide. The user should continue to use the marked-up EOSS until the feedback is resolved by NSWCCD-SSES.
2. Deviation is authorized when EOSS does not match the actual configuration or the propulsion plant is modified. These modifications include such things as SHIPALTs, MACHALTs or AERs. EOSS diagrams and procedures shall be marked-up to reflect these configuration changes. These changes shall be reported to NSWCCD-SSES using the routine EOSS feedback form as indicated in Chapter 6. Include a copy of all marked-up diagrams and procedures.
3. Deviation is authorized when a component or system becomes inoperative or a TYCOM deviation from specifications is issued. Under such conditions, the following actions shall be performed:
 - a. The Commanding Officer and OOD shall be notified as required by Navy regulations. At that time, they shall be briefed fully on the guidance necessary to deviate from the installed EOSS.
 - b. Changes shall then be made and pasted into each watchstander's book with the Commanding Officer's signature appearing at the bottom of each procedure. It should be noted that each watch supervisor and watchstander must be fully knowledgeable of all deviations prior to a watch turnover.
 - c. All changes shall be removed from the EOSS books upon repair of the equipment or component.
 - d. It is assumed that these actions will only be taken for a condition which is temporary in nature. For conditions which will persist longer than 6 months, an EOSS routine feedback shall be submitted, using the procedures outlined in Chapter 6.
 - e. For deficiencies which are expected to be resolved within six months, it is recommended that temporary Engineering Officer Standing Orders be prepared to ensure safe operation of degraded equipment.
4. Deviation is authorized to adhere to provisions of ISE & class advisory messages.

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5. Deviation is authorized when the ship is operating in a restricted maneuvering situation. A complete description of the restricted maneuvering casualty control procedures in effect is required. In all cases, the procedures for normal casualty control are mandatory unless expressly modified in writing by the Commanding Officer.

No other deviations or local changes to EOSS are authorized. Only NSWCCD-SSES can approve and issue permanent changes to the NAVSEA installed EOSS.

1.6.1 SHIPYARD AVAILABILITIES

NSWCCD-SSES is tasked with revising EOSS to reflect configuration changes made during scheduled availabilities.

During a ship's scheduled availability, NSWCCD-SSES will schedule an EOSS verification check approximately four weeks prior to the ship's end of availability. This will ensure that all system modifications/installations affecting EOSS are completed prior to the shipcheck to ensure an accurate update.

The purpose of the verification check is to validate changes to EOSS procedures due to authorized SHIPALTs installed during the availability.

At the conclusion of the verification check, the NSWCCD-SSES team leader will debrief the Engineering Officer on the results of the check and all EOSS changes.

The Engineering Officer will be provided with a marked-up copy of all procedures and diagrams changed during the shipcheck. These documents are authorized for use by ship's force until the final laminated EOSS is received (usually within 12 weeks). It is recommended that the Engineering Department supervisors review these documents, conduct watchstander training with emphasis on the changes and place a paper copy into all affected on-station books. A letter authorizing the use of these documents until the final laminated EOSS is received will be provided to ship's force by the NSWCCD-SSES team leader.

1.6.2 MACHALT INSTALLATIONS

When a MACHALT is installed on a ship, it will include a copy of all affected Logistics. The EOSS provided in the package is representative of the MACHALT installation. Upon completion of the MACHALT, the installation team will annotate the EOSS provided in the kit to represent the actual ship configuration.

1.6.3 ALTERATIONS INSTALLED OUTSIDE SCHEDULED AVAILABILITIES

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As a result of the lengthening of periodicities between CNO approved availabilities and reduced Fleet funding, many alterations are being installed outside of availabilities. Alteration Installation Teams (AIT) are installing an increased number of alterations when ships are pierside for sufficient time. NSWCCD-SSES is not always made aware of these installations, therefore EOSS does not reflect these changes.

1.7 DEVELOPMENT ASSUMPTIONS

In order to provide a usable, manageable system, the following assumptions are made:

- a. All systems are intact and operational.
- b. All equipment is operational within design operating parameters.
- c. Only standard authorized configurations are addressed.
- d. All engineering watchstanders use EOSS.
- e. Procedures are arranged by watch area.
- f. Procedures are written to a qualified watchstander level.

It should be noted that specific pressures for the testing of alarms and set points are not given in the STARTING and STOPPING sections of component procedures. These pressures are located in the design operating data sections.

1.7.1 PARAMETERS

In a procedure's OPERATING section, at a minimum, design operating parameters are provided. Design operating parameters are limited to those which can actually be observed by the operator. In most cases the design operating parameters have been derived by the equipment manufacturer. Design operating parameters are based on controlled conditions and are not provided in EOSS as an operating requirement, but rather as a baseline the operator should use to better understand equipment capability and function. New equipment should operate closest to the parameters specified during optimum conditions. However, many variables affect the operating parameters even in new equipment. Some variables affecting equipment operating parameters include:

- Ambient temperature
- Build up of internal deposits
- Initial start-up
- Equipment load

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- Seawater injection temperature
- Normal equipment wear
- System configuration

These variables, the data in EOSS, technical manuals, and Planned Maintenance System procedures (PMS), as well as operating history as delineated in operating logs must be taken into account to determine if a particular piece of equipment is functioning properly.

In addition to DESIGN OPERATING DATA, setpoint data may be provided in the OPERATING Section of the procedure. Setpoint data have been independently researched and determined to be accurate limits within which the equipment should operate. These values are a direct indication of a machine's operational condition. Equipment which does not operate at or within these parameters should be examined and the cause for deviation identified. Generally, alarms and discrete setpoints are provided as setpoint data. It serves no purpose to include a range that covers instrumentation accuracy or system response time. However, to ensure standardization with the technical manual, tolerances are shown in some cases. The purpose of testing safety features (alarms, auto-start/stop, etc) in EOSS is to ensure that safety features are functioning correctly, not to verify exact setpoints. Verifying the precise setpoint is accomplished in PMS.

Lastly, in some cases where deemed necessary for operation, and when specific test data are available operating ranges are provided. These ranges are similar to setpoint data in that equipment which is not functioning within these parameters should be examined for malfunctions.

The ship should ensure operating log preprinted ranges are based on primary references such as PMS, equipment technical manuals and plant operating guides.

1.8 SEMI-ANNUAL UPDATE PROGRAM (SAU)

The SAU Program is designed to provide all ships within a class with an updated EOSS package every six months. This update incorporates all changes in operating philosophy, class advisories, parameter changes and any technical feedback reports (TFBRs) which occurred during the previous six-month period.

Each ship in the class will receive a package of new laminated documents and List Of Applicable Dates (LOAD) every six months. This results in a high degree of standardization because all changes are promulgated on a class basis, rather than being incorporated on an individual basis, as ships undergo shipyard availabilities.

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Other factors generating EOSS revisions include class advisories, safety notices and policy changes issued by NAVSEA. All these revisions must be tracked and incorporated by the ship into the installed EOSS package.

The SAU program limits the number of revisions to two (2) per year by accumulating and assembling these changes through a semi-annual cycle and providing them as part of the SAU. It must be noted that revisions for availabilities where a shipcheck is required will continue to be provided.

TFBRs response time is reduced under the SAU program because Records of Revision and finalized coded replacement documents are not provided with the TFBR response. If the TFBR results in a change, the TFBR becomes the ship's authorization to deviate in that particular area of the EOSS, and a marked-up copy of the applicable procedures (stamped "NSWCCD-SSSES APPROVED" and signed and dated) is provided with the feedback response and should be kept in the logroom. Finalized documents are included for all changes as part of the next scheduled SAU.

1.9 DECOMMISSIONED SHIPS

As agreed upon by NSWCCD-SSSES, NAVSEA and the Type Commanders, ships scheduled to be decommissioned will stop receiving answers to "Routine" EOSS feedbacks nine (9) months prior to decommissioning. Changes to EOSS documents resulting from "Routine" feedbacks may be authorized by the Commanding Officer following the guidance provided in this User's Guide. NSWCCD-SSSES will continue to answer "Safety Related" and Category "A" feedbacks until each ship is decommissioned. In addition, development and distribution of Semi-Annual Updates will cease one (1) year prior to each ship's decommissioning.

CHAPTER 2 ENGINEERING OPERATIONAL PROCEDURES (EOP)

2.1 DESCRIPTION

The EOP consists of technically correct written procedures, status charts and diagrams required for the normal transition between steady state operating conditions.

2.2 CONFIGURATION

The EOP is configured according to the individual ship's engineering plant configuration and degree of plant control (i.e., fully automated, partially automated, non-automated) to provide the maximum level of control and minimum level of supervision.

2.3 TYPES OF EOP

The EOP consists of several types of procedures. These are described in the paragraphs that follow.

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2.3.1 MASTER PRELIGHTOFF CHECKLIST (MLOC)

The MLOC has been written to include the recommended minimum actions which must be completed prior to proceeding with plant startup/lightoff. Items which refer to situations other than initial startup or light off, which should be accomplished prior to a change in steady state plant status are noted with an asterisk. The last page of the prelightoff checklist provides space for the Engineer Officer to list specific PMS actions which are to be completed prior to startup/lightoff.

Whenever an EOP can be used to accomplish a prelightoff check, that procedure will be referenced. MLOC for gas turbine ships is structured such that it is integral with the Master Plant Procedures and must be accomplished prior to commencing the startup. MLOC is intended to be accomplished by the duty section under the supervision of the duty engineer and includes only those actions which can be accomplished prior to startup. All MLOC discrepancies must be reported to the Engineer Officer. The Commanding Officer may waive MLOC discrepancies when circumstances warrant.

2.3.2 MASTER PLANT PROCEDURES (MPs)

Each MP is a compilation of corresponding Operational Procedures (OPs) for a specific plant status change. MPs contain all major actions, NOTES, CAUTIONS, WARNINGS, and communications between the EOOW, The Officer of the Deck (OOD) and Space Supervisors. Actions in MPs are in sequentially correct order except when several actions may be occurring simultaneously. MPs provide an overview of the plant status change.

The EOP for gas turbine ships is structured so that the MPs are the overall controlling documents used by the EOOW. Operational Procedures, other than those for the Oil King, are not provided for these ships. When MPs are structured as an EOOW user document, the following applies:

- a. Master plant procedures contain all required actions necessary to accomplish the steady-state to steady-state changes addressed in EOSS.
- b. Actions are listed in sequentially correct order.
- c. Roman numeral headings serve as sequence hold lines. All actions within a Roman numeral heading shall be completed prior to proceeding to the next section.
- d. All plant critical and sequence keying communications are included. The majority of reports to the EOOW are contained in the applicable system and component procedures.

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- e. All major functions required for positive plant control are provided.

EOP for all ships contain restoration procedures for restoring the propulsion plant(s) from a modified secured status which resulted from a casualty. Generally, the situations addressed are:

- a. Restoration from a boiler casualty (steam ships).
- b. Restoration from a non-restorable boiler casualty (steam ships).
- c. Restoration from a main engine casualty (steam and diesel ships).
- d. Restoration from a main reduction gear/shafting casualty (diesel and gas turbine ships).
- e. Restoration from a Class "C" fire.

Consistent with safety and state of training, restoration of mobility and electric power must be a primary goal of casualty restoration. Additional personnel may expedite the repair and restoration from casualties.

2.3.3 OPERATIONAL PROCEDURES (OPs) FOR THE EOOW

Each OP contains logically sequenced actions and required communications for directing, controlling and coordinating the actions of Space Supervisors to accomplish a plant status change.

2.3.4 OPERATIONAL PROCEDURES (OPs) FOR SPACE SUPERVISORS

Each OP contains logically sequenced actions and required communications between the Space Supervisor, the EOOW and all watch station personnel under the supervisor's control in support of plant status changes. Each OP will specify the Component Procedure (CP) or System Procedure (SP), by use of acronyms, required by watchstanders to perform the action as ordered by the Space Supervisor.

2.3.5 OPERATIONAL PROCEDURES (OPs) (GAS TURBINE SHIPS)

Although OPs are not generally utilized in gas turbine ships' EOP, there are specific exceptions. These exceptions are limited to the Oil King and restoration procedures.

Watch areas which utilize the OPs are limited to the OOD and EOOW. Since ship design considers the spaces unmanned, there are no OPs provided for the spaces. All systems and equipment are aligned or placed into operation using system or component procedures as directed by the OOD or EOOW.

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OPs utilized in the FFG-7, DD-963 and CG-47 Class ships are limited to the Electric Plant Control Console (EPCC) casualty restoration procedures and Oil King documentation.

2.3.6 SYSTEM PROCEDURES (SPs)

Each SP contains logically sequenced procedures and required reports to align or secure a system and start or stop components within that system as necessary to complete an evolution as ordered by the Space Supervisor, EOOW or OOD. Each SP will, by use of a preprocedural NOTE, direct the user to a specific diagram(s) to be used in support of the SP being accomplished.

2.3.7 COMPONENT PROCEDURES (CPs) (STEAM & DIESEL SHIPS)

Each CP contains logically sequenced actions and required reports to prepare, align, start, operate, shift, secure or stop a specific component as ordered by the Space Supervisor. Each CP will, by use of a preprocedural NOTE, direct the user to a specific diagram(s) to be used in support of the CP being accomplished. CPs for turbine-driven equipment and other equipment when warranted will contain sections for STOPPING DURING A CASUALTY and STARTING AFTER A CASUALTY. These sections contain the minimum actions required to:

- a. Stop the component rapidly and safely for a short interval of time.
- b. Restart the component after the casualty condition is corrected.

Sections for STOPPING DURING A CASUALTY and STARTING AFTER A CASUALTY will not be used for normal operation and the STOPPING DURING A CASUALTY section must be memorized when used in conjunction with Controlling and Immediate Actions of casualty control procedures.

2.3.8 COMPONENT PROCEDURES (CPs) (GAS TURBINE SHIPS)

Each CP contains logically sequenced actions and required reports to prepare, align, start, operate, shift, secure or stop a specific component as ordered by the EOOW or OOD. Each CP will, by use of a preprocedural NOTE, direct the user to a specific diagram(s) to be used in support of the CP being accomplished.

There are unique CPs provided in the package which integrate with the casualty control procedures. The CPs are located at the Control Console and local operating levels at the gas turbine generator and switchboards. The PACC procedure provides a safe, but abbreviated procedure for main engine starting.

2.3.9 STATUS CHARTS (SCs)

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Each SC contains information, or a means to maintain information current, in support of plant status changes and normal steady state operation. Use of SCs will ensure that exact plant status is readily available at all times and the supervisor can determine the effect that a specific action will have on the plant. SCs should not be utilized for Tag Out as they are an overview of the system and do not show the detail necessary for a Tag Out.

2.3.10 SYSTEM DIAGRAMS (SDs)

SDs are provided for systems within the propulsion plant. These diagrams will show all valves in a specific system. The numbers assigned each valve are the numbers designated in your Ship's Information Book (SIB) or "E" numbers assigned by the EOSS developer for those valves not designated in the SIB.

2.3.11 STANDARD NOTES FOR THE OIL KING (SNOK)

The SNOK contains information and guidance relative to environmental protection, safety and operational requirements for the various fueling/defueling and transfer operations.

2.3.12 TANK TABLES (TTs)

Tank Tables (TTs) provide the proper valve alignment for each combination of tank(s), component(s), fuel station(s), and system(s) that are used when accomplishing an evolution. Each group of columns on the Tank Table, together with its heading, indicates a combination. To use the Tank Table, first select the desired combination, then open the valves listed in the column below Common Valves (when provided) and below the designated tank(s).

2.3.13 TANK STATUS DIAGRAMS (TSDs)

Each TSD contains the Fuel Oil Service, Storage, Contaminated and Reserve/Emergency feedwater tank location. The capacity of each tank is shown and space provided to record the actual amount in gallons as well as feet and inches.

2.4 SEWAGE DISPOSAL PROCEDURES (SDOSS)

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SDOSS is a system consisting of coordinated, standardized, and technically correct written procedures, diagrams, and tables for managing the operation of your ship's sewage disposal system. The system provides an aid for planning and managing evolutions that apply to your sewage disposal system. It provides information defining equipment requirements to accomplish each evolution, the proper system alignments, and the sequence in which steps are to be done. The SDOSS documentation provides a ready reference for the qualified operator and a single source to familiarize a new officer or petty officer with the Sewage Disposal System installed on your ship. Additionally, the documentation provides an ideal training aid for either group or individual training. The information contained in this User's Guide also applies to the SDOSS System.

CHAPTER 3 ENGINEERING OPERATIONAL CASUALTY CONTROL (EOCC)

3.1 DESCRIPTION

The EOCC consists of technically correct, logically sequenced procedures for responding to and controlling commonly occurring casualties. When properly followed, these procedures result in the placing of the propulsion plant in a safe, stable condition while the cause is being determined. After the cause has been discovered and the problem corrected, provision is made for casualty restoration.

MCM-1 Class EOCC does not address mine sweeping operations.

3.2 PROCEDURE TYPES

EOCC consists of four procedural formats:

- a. Master Casualty Response Procedures
- b. Casualty Response Procedures
- c. Master Emergency Procedures
- d. Emergency Procedures

The intended use of each type of procedure is described in the paragraphs that follow.

3.2.1 MASTER CASUALTY RESPONSE PROCEDURES (MCRPs) (STEAM AND DIESEL SHIPS)

MCRPs provide an overview of the casualty response for each specific casualty. Each MCRP contains the following sections:

- a. Symptoms/Indications
- b. Possible Causes

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- c. Possible Effects
- d. Controlling Actions
- e. Immediate Actions
- f. Supplementary Actions
- g. Restore Casualty.

Actions are logically sequenced except where several actions occur simultaneously. All communications between the EOOW, the OOD and Space Supervisors are included.

The MCRPs provide the controlling actions which may be accomplished to prevent a casualty when abnormal conditions exist and those immediate and supplementary actions necessary to control the casualty when it occurs. Additionally, actions for restoring the plant to an operational condition are provided.

Symptoms/Indications, Possible Causes and Possible Effects are arranged vertically from the top in the order of probable occurrence.

Controlling Actions detail the sequential steps to be taken to stabilize an abnormal situation and prevent an actual casualty.

Immediate Actions detail the sequential steps necessary to stabilize, gain control and stop the cascading effect of the casualty. Note that the watchstander should not proceed to Immediate Actions until notified that a casualty has occurred. If a watchstander has no Controlling Actions, watchstander must wait until notified that a casualty has occurred before accomplishing Immediate Actions.

Supplementary Actions detail the sequential steps to be taken by watchstanders in stabilizing the engineering plant and securing equipment so that the Engineering Officer can determine whether the casualty may be restored or the plant secured for repairs. Note that the watchstander may proceed to supplementary actions immediately after watchstander has completed all of their immediate actions.

All Controlling Actions and Immediate Actions are intended to be memorized by the watchstander. The watchstander should refer to the EOCC procedure as soon as feasible to ensure all Controlling/Immediate Actions have been completed. The watchstander may reference the Supplementary Actions section of the casualty procedure after the Immediate Actions are completed.

PROCEDURE

The Restore Casualty section details the actions or references a related EOP procedure which will restore the plant to a normal underway configuration. Whenever a casualty is not considered to be restorable, the Restore Casualty section will so specify.

3.2.2 MASTER CASUALTY RESPONSE PROCEDURES (MCRPs) (Gas Turbine Ships)

MCRPs are structured as described in paragraph 3.2.1, but are specifically tailored as EOW user documents with all plant critical actions and reports included. Immediate Actions for gas turbine ships are structured to assume that all watchstanders are fully qualified and take actions necessary to stop and control the casualty without EOW orders.

3.2.3 CASUALTY RESPONSE PROCEDURES (CRPs)

CRP actions are logically sequenced for each watch area to respond to a specific casualty. The minimum required communications to maintain positive control are included. Individual watch area CRPs are written for each casualty with the following exceptions:

- a. When that watch area is not affected by the casualty (such as a main reduction gear not being affected by a ship service generator casualty).
- b. When actions taken are exactly the same for several different casualties (such as switchboard operator actions for various boiler casualties).

Watch area CRPs do not contain Symptoms/Indications, Possible Causes, and Possible Effects. Personnel have a complete set of master casualty response procedures available which are intended to be used as a study guide. The Symptoms/Indications, Possible Causes, and Possible Effects must be learned.

- a. These are developed as watchstander (console operator, fireroom upper level, etc.) user documents.
- b. Controlling and Immediate Actions are required to be memorized. The watchstander should refer to the EOCC procedure as soon as feasible to ensure all Controlling/Immediate Actions have been completed. The watchstander may reference the Supplementary Actions section of the casualty procedure after the Immediate Actions are completed.
- c. Order, notify, and report statements are contained in the casualty response procedures to maintain control of the plant as well as sequence the actions.

3.2.4 MASTER EMERGENCY PROCEDURES (MEPs)

PROCEDURE

MEPs are provided for the EOOW's use when a casualty requires either that the affected shaft be locked, emergency pitch set, or propulsion turbines cooled following an emergency stop. These procedures are similar to the Master Casualty Response Procedure (MCRP) in that all communications necessary for positive plant control are provided.

MEPs are referenced in logical sequence with actions of a MCRP and, when complete, the MEP refers the user back to the MCRP for the remainder of the casualty actions. In summary, a specific evolution is designated a MEP for the following reasons:

- a. It is used while isolating several plant casualties.
- b. It is a potentially hazardous procedure requiring too much detail to be included in the MCRPs.

3.2.5 EMERGENCY PROCEDURES (EPs)

The EP is similar in format to a component procedure. It lists the step-by-step procedure for performing a specific evolution in support of a CRP. A specific evolution is designated an EP for the following reasons:

- a. It is used while isolating several plant casualties.
- b. It is a potentially hazardous procedure requiring too much detail to be included in the Casualty Response Procedure.

All the actions listed in the EP must be memorized whenever referenced within the Immediate Actions section of a casualty procedure. EPs referenced in the Supplementary Actions or Restore Casualty sections are used in accordance with the guidance relative to the respective section.

3.3 STANDARD ASSUMPTIONS

Due to the large number of possible equipment combinations and steaming conditions that could exist when a casualty occurs, certain conditions have been established as a basis for development of EOCC for each class of ship. The conditions are shown in the EOSS User's Guide Appendix (CP NO. DEUG).

CHAPTER 4 COMMUNICATIONS

4.1 INTRODUCTION

The need for correct and standardized communication procedures cannot be over-emphasized. Communication procedures, discussed in the following paragraphs, should be used in conjunction with EOSS.

4.2 CHAIN OF COMMAND

PROCEDURE

EOWW - Receives orders from, and reports to, the OOD and/or CSOWW as appropriate.

SPACE SUPERVISOR - Receives orders from, and reports to, the EOWW. Gives orders to, and receives reports from, watchstanders in the area(s) of their supervision.

WATCHSTANDER - Receives orders from and reports to the Space Supervisor and/or the EOWW.

4.3 REPEAT BACK COMMUNICATION PROCEDURES

Each watchstander will make every effort to clearly state all orders and reports. To ensure that all orders/reports are received and understood, watchstanders will repeat back each order/report they receive to the person giving the order/report. All information will be repeated back in summary form as time permits, but must not be allowed to interfere with the transmission of required orders. Warnings to space watchstanders should be repeated a second time if no repeat back is made on the first warning.

4.4 ADDITIONAL REQUIREMENTS

- a. All orders and reports will be addressed to watchstations rather than by name to individual watchstanders.
- b. Communication circuit discipline will be observed.
 - (1) Keep communications brief.
 - (2) Communication circuits to be used for official communications only.
 - (3) Do not interrupt ongoing communication except in an emergency.
 - (4) Slang terms or locally devised code signals will not be used.
- c. It is essential that personnel be articulate, brief, calm and possess a good understanding of engineering terminology.
- d. Call the station and report the message without delay.

4.5 TERMINOLOGY

The following terminology is used throughout EOSS:

- a. **ADJUST** - An action or series of actions which result in a change in the position or operating condition of a component or system.

PROCEDURE

- b. **ALIGN** - The opening or shutting of valves in a piping system or the positioning of switches or controls in an electrical system to permit the required flow of fluids or current.
- c. **ASSISTANCE REQUIRED** - Indicates an action in one or more watch areas which requires more than one person to accomplish.
- d. **AUXILIARY OPERATION** - A steady state condition where a ship is self-sustaining but not underway.
- e. **CAUTION** - Used to alert personnel to an action or series of actions which, if not strictly adhered to, may result in damage to equipment. CAUTIONS will always follow NOTES, and precede any WARNINGS and any action or series of actions to which they apply.
- f. **CLOSE** - The action of securing a valve to halt flow of fluid or, in the case of electrical components, the act of positioning a circuit breaker or switch to permit current flow.
- g. **CONTROLLABLE** - Used to describe an abnormal condition or casualty situation when the Controlling Actions taken have contained the casualty or stopped the cascading effect and possibly returned the plant to normal operation.
- h. **CRACK OPEN** - The act of opening a valve a small amount to permit fluid flow at a minimum rate as compared to normal flow.
- i. **CROSS-CONNECT** - The act of opening valves in a system with more than one segment, each capable of independent operation, so that the segments can operate as one system.
- j. **DEENERGIZE** - The act of opening an electrical circuit breaker/or switch at a power supply.
- k. **DESTROKE** - The act of securing a piece of equipment or a system by activating a switch or switches.
- l. **ENERGIZE** - The act of closing an electrical circuit breaker/or switch at a power supply.
- m. **ENSURE** - Indicates a condition or an action which should have been previously accomplished; however, when not accomplished, action must be performed prior to continuing with procedure.

PROCEDURE

- n. **FULL POWER** - A term used to describe the steady state operational condition where all propulsion turbines are running and online. This condition is outlined in OPNAVINST 9094.1A dtd 4 Apr 83.
- o. **HARDOVER** - The command given to the helmsman ordering the maximum achievable rudder angle for a port or stbd direction.
- p. **LOCKED** - Term used to describe any valve or piece of equipment which has a mechanical device or apparatus that prevents inadvertent operation.
- q. **LOWER** - Actions required to decrease the speed of a piece of equipment or output voltage, amperage or frequency of a generator.
- r. **NONFOLLOW-UP** - A steering mode available on some ships that uses a type of joystick control to turn the rudder to the left or right. In this mode the steering system does not position the rudder to an ordered angle. This mode is used when other remote steering operating modes normally available on the bridge have failed.
- s. **NON-RESTORABLE CASUALTY** - A casualty in which: (1) the material condition of the equipment is unacceptable for normal operations (as determined by the Engineer Officer). (2) requires equipment be removed from service so repairs can be accomplished. (3) requires repairs beyond the capability of the ship.
- t. **NOTE** - Used to alert personnel of essential information, project final results or highlight a particular condition. NOTES normally precede CAUTIONS and WARNINGS, and any action or series of actions to which they apply.
- u. **NOTIFY** - Used to indicate vital information that must be passed to other watchstanders.
- v. **OPEN** - The action of aligning a valve to allow full flow of fluid or, in the case of electrical components, positioning a circuit breaker or switch to interrupt current flow.
- w. **OPTIMUM** - Describes the best equipment combination and system alignment for a given plant condition.
- x. **ORDER** - Indicates an action or series of actions which must be directed and controlled. When an Order is given, there will be a Report that the action or series of actions has been completed.

PROCEDURE

- y. **PARALLEL OPERATION** - Generator plant operating in a closed, parallel mode of operation, bus tie breakers close.
- z. **PULSE** - The act of actuating and immediately releasing a valve operating mechanism such that the valve is open only for a very short time.
- aa. **RAISE** - Actions required to increase the speed of a piece of equipment or output voltage, amperage or frequency of a generator.
- ab. **REPORT** - Used to indicate that the actions or series of actions have been completed as ordered.
- ac. **RESTORABLE CASUALTY** - A casualty in which a watchstander can perform actions necessary to correct the problem, as determined by the Engineer Officer, and restore equipment to normal operation.
- ad. **SECURE** - A term used to describe the steady state operational condition where all propulsion turbines are stopped with clutches disengaged. Actions which stop the operation of components or systems which do not have rotating elements.
- ae. **SHIFT** - Action(s) required to exchange components or change a system's mode of operation.
- af. **SHUT** - The action of shutting a valve to prohibit fluid flow.
- ag. **SPLIT-PLANT (STEAM)** - The act of shutting valves in a system with more than one segment, each capable of independent operation, so that each segment can operate independently. In electrical systems the operating mode of generators supplying their own switchboards, bus tie breakers open.
- ah. **SPLIT-PLANT (GAS TURBINE)** - A term used to describe the steady state condition of Gas Turbine ships where two propulsion turbines are in operation one driving the port shaft and one driving the starboard shaft.
- ai. **STANDARD SPEED** - A term used to describe the speed at which the ship travels during normal underway operations.
- aj. **START** - Actions required to place a rotating component into operation.
- ak. **STOP** - Actions which cease the motion of the rotating element of a component.

PROCEDURE

- al. **TRAIL SHAFT MODE (EOP)** - A term used to describe a steady state operational condition where the ship is underway with one engine on one shaft providing propulsive power while the other shaft is trailing.
- am. **TRAIL SHAFT MODE (EOCC)** - Casualty control procedures for the driving shaft's engine, reduction gear, shafting and propeller.
- an. **TRAILING SHAFT MODE (EOCC)** - Casualty control procedures for the reduction gears shafting and propeller of the trailing shaft while operating in a trail shaft mode.
- ao. **TRICKWHEEL** - Device which receives an input signal from the helm and a feedback signal from the steering ram and sends a summary input to the steering pump.
- ap. **UNCONTROLLABLE** - Used to indicate a situation which requires immediate action to minimize damage to equipment or injury to personnel.
- aq. **UNDERWAY READY** - A condition pertaining to an aircraft carrier underway operational condition where at least two boilers are on-line with two main engines under vacuum jacking over and two main engines secured jacking over.
- ar. **USER NOTES** - A column provided down the left side of all Master Plant Procedures (MPs), Operating Procedures (OPs) and the Master Prelightoff checklist (MLOC) for making annotations regarding completion times or specific watchstander responsibility.
- as. **VERIFY** - Used to alert personnel to a position/status or action which must exist prior to commencing an action or series of actions.
- at. **WARNING** - Used to alert personnel to an action or series of actions which if not strictly adhered to may result in injury to personnel. WARNINGS will always follow NOTES and CAUTIONS, and will precede the action or series of actions to which they apply.
- au. **WHEN ORDERED** - Used to indicate an action or series of actions which must not be performed until ordered by the EOW or Space Supervisor.
- av. **WHEN REPORTED** - Used to indicate an action or series of actions which must not be performed until Report of previously Ordered action or series of actions is received.
- aw. **WHEN REQUIRED** - Used to indicate an action or series of actions which may or may not be required to be performed.

PROCEDURE

CHAPTER 5 LEARNING TO USE EOSS

5.1 INTRODUCTION

Each watchstander must learn how EOSS is structured prior to using it in an actual situation. This chapter provides an approach for learning how to use EOSS and gaining overall EOSS familiarization.

Repeated use of the EOSS will increase the watchstander's level of proficiency. As a result, the manner in which the watchstander utilizes EOSS will change. At the highest level of proficiency, the watchstander will use the procedure as a check-off sheet, ensuring that all required actions are accomplished in the correct sequence.

5.2 LEARNING TO USE EOP

Obtain the EOP manual(s) for your watch area, review the procedures that it contains and then proceed as described in the following paragraphs:

5.2.1 THE EOOW AND EOP

Read the individual actions in each OP (or MPs when OPs are not provided) and review the associated Status Charts (SCs) and Status Diagrams (SDs).

When you have familiarized yourself with your EOP, familiarize yourself with the EOP for each Space Supervisor (where applicable) which will give you a better understanding of what is occurring in each engineering space during plant status changes. As you familiarize yourself with each Space Supervisor EOP (when required), it is suggested that you familiarize yourself with some of the EOP (CPs and SPs) for the watch areas in that space. Particular attention should be directed to SPs and CPs for major equipment that are vital to plant operations.

When you have familiarized yourself with each EOP for Space Supervisor(s), your next step (if required) is to read the MP for each plant status change. This will give you a complete overview of each plant status change. Keep in mind that the sequence for CPs and SPs as found in MPs will differ from the sequence in OPs. This is due to several actions occurring simultaneously throughout the plant. The sequence for CPs and SPs in each Space Supervisor(s) OP is correct.

5.2.2 THE SPACE SUPERVISOR AND EOP

Read the individual actions in each OP and SP and review the associated SCs and SDs.

PROCEDURE

When you have familiarized yourself with your EOP, familiarize yourself with the EOP for each watch area under your supervision. It is not necessary that you read all the actions in every CP and SP. You should, however, be aware of what each procedure contains and which watchstander will perform the required procedure.

When you have familiarized yourself with the EOP for each watch area under your supervision, familiarize yourself with your role in plant status changes by obtaining the EOP manual containing MPs and read the individual actions in each MP.

5.2.3 THE WATCHSTANDER AND EOP

Read the individual actions in each CP and SP and review the diagrams associated with them. Individual actions included in CPs and SPs are not normally ordered. Only when an individual action is critical to plant operations or must be coordinated, will it be ordered by the Space Supervisor or EOOW.

When you have familiarized yourself with your EOP, familiarize yourself with the EOP for the Space Supervisor or EOOW. Read the individual actions included in each OP.

When you have familiarized yourself with the EOP for the Space Supervisor (when required) familiarize yourself with your role in plant status changes by obtaining the EOP manual containing MPs and read the individual actions in each MP.

5.2.4 CONDUCTING A PLANT STATUS CHANGE TALK-THROUGH

When each watchstander has become familiar with the EOP for their watch area the next step is to "talk-through" a plant status change. This will allow each member of a watch team to become more familiar with their EOP and their position in plant status changes. Attendance and participation by all watch team members is a must to conduct a successful training session.

To conduct a "talk-through", proceed as follows:

- a. While talking through a plant status change, keep the following in mind:
 - (1) An action that begins with "When ordered" is not to be accomplished until after the "Order" action has been read.
 - (2) An action that begins with a NOTE that describes a condition that must exist before the action can be performed is not to be accomplished until the required condition exists.

PROCEDURE

- (3) Although, in an actual situation several steps will be occurring simultaneously, only one person is to be reading at any given time.
- (4) If, at any time, a question or misunderstanding arises, stop and resolve it.
- b. The EOW selects the OP (or MP) for the selected plant status change to be "talked through" and begins reading the actions out loud. The first actions that he/she reads will be actions ordering the Space Supervisor(s) to perform specific actions using specific OPs.
- c. Each Space Supervisor (where applicable) then locates the specified OP and begins reading the actions out loud.
- d. As each Space Supervisor or EOW reads an action that requires an order to one of their watchstanders to perform a specific action using a specific CP or SP, the watchstander locates the CP or SP and reads the actions out loud.

5.2.5 CONDUCTING A PLANT STATUS CHANGE WALK-THROUGH

When all members of a watch team have "talked-through" a plant status change, the next step is to conduct a "walk-through" of that plant status change. While conducting a "walk-through" all actions will be simulated i.e. read the procedure, place "hands on" valves and/or control elements, locate dipsticks, thermometers, etc. Do not simulate communications; all orders will be given and reports made just as they will be during an actual plant status change.

As a minimum, each plant status change should be walked-through at least once by each watch team. The more often the walk-through is conducted, the smoother the actual plant status change will be.

5.2.6 HOT PLANT CHECKS

The final step is to use the EOP to operate the plant. Each MP, OP, CP, and SP will be used during normal lightoff/startup and securing so that the watch team will become a knowledgeable and efficient unit.

5.3 LEARNING TO USE EOCC

Each watchstander should learn to use Casualty Response Procedures one casualty at a time because the philosophy for strictly adhering to EOCC is different from EOP. The EOCC can be utilized only by a fully qualified proficient watchstander when responding to a casualty because of the following:

- a. The requirement to learn the following information:

PROCEDURE

- (1) Symptoms/Indications
- (2) Possible Causes
- (3) Possible Effects

b. The requirement to memorize the following information:

- (1) Controlling Actions
- (2) Immediate Actions
- (3) Stopping During a Casualty section of designated EOPs.

c. Variation in watchstander actions for different casualties.

5.3.1 THE EOOW AND EOCC

Once you have learned the symptoms/indications, possible causes and possible effects for a particular casualty proceed as follows:

- a. Review the Master Casualty Response Procedure to get a complete picture of the overall casualty response and allow you to see your role in that response.
- b. Memorize the "Controlling Actions" and "Immediate Actions" sections of the corresponding Casualty Response Procedure.
- c. Read and familiarize yourself with actions in the "Supplementary Actions" and "Restore Casualty" sections of the corresponding Casualty Response Procedure.
- d. Read and familiarize yourself with the corresponding Space Supervisor(s) Casualty Response Procedure (when required).

As the EOOW, your primary responsibility during the "Controlling Actions" and "Immediate Actions" phases of the casualty is to receive reports, notify all engineering spaces so that "Controlling Actions" and "Immediate Actions" can be initiated where and when required, and report to the OOD what is occurring in the engineering plant and what the engineering plant operational limitations are. During the "Supplementary Actions" and "Restore Casualty" phases, your primary responsibility is to direct control and coordinate the actions necessary to bring the plant to a safe and stable operating condition. If off-watch personnel can facilitate restoration they can be summoned as required. This is to be done as quickly as possible to ensure the plant is restored to full operation in a minimum amount of time. The OOD, TAO, or CSOOW shall be provided with an estimate of when services will be restored.

PROCEDURE

5.3.2 THE SPACE SUPERVISOR AND EOCC

Once you have learned the symptoms/indications, possible causes and possible effects for a particular casualty proceed as follows:

- a. Review the Master Casualty Response Procedures to get a complete picture of the overall casualty response and allow you to see your role in that response.
- b. Memorize the "Controlling Actions" and "Immediate Actions" section of the corresponding Casualty Response Procedure for your watch area.
- c. Read and familiarize yourself with actions in the "Supplementary Actions" and "Restore Casualty" sections of the Casualty Response Procedure for your watch area.
- d. Read and familiarize yourself with the corresponding Casualty Response Procedures for watchstanders in your area of supervision. Particular attention should be directed to their "Controlling Actions and "Immediate Actions".

5.3.3 THE WATCHSTANDER AND EOCC

Once you have learned the Symptoms/Indications, Possible Causes and Possible Effects for a particular casualty proceed as follows:

- a. Review the Master Casualty Response Procedures to get a complete picture of the overall casualty response which allows you to see your role in that response.
- b. Memorize the "Controlling Actions" and "Immediate Actions" sections of the corresponding Casualty Response Procedure for your watch area.
- c. Memorize the "Stopping During a Casualty" section of CPs designated in the Casualty Response Procedure for your watch area (where applicable).
- d. Read and familiarize yourself with actions in the "Supplementary Actions" and "Restore Casualty" sections of the Casualty Response Procedure for your watch area.
- e. Review and familiarize yourself with the corresponding Casualty Response Procedure for the Space Supervisor.

5.3.4 CONDUCTING A TALK-THROUGH OF CASUALTY RESPONSE PROCEDURES

PROCEDURE

Talking-through a Casualty Response Procedure is conducted differently than talking-through an EOP since "Controlling Actions" and "Immediate Actions" must be memorized prior to conducting a talk-through. Each member of a watch team must also learn "Symptoms/Indications", "Possible Causes" and "Possible Effects" and memorize "Stopping During a Casualty" sections of designated CPs in the EOP.

Talking-through a Casualty Response Procedure is a test of the watch team's preparedness. The talk-through should be conducted as follows:

- a. Assemble two watch teams; one team to participate and one team to observe (follow the written actions). The role of the observer is to determine how well the participating watchstander understands thier required actions.
- b. Designate one of the participating watchstanders to initiate the casualty (report the symptoms/indications).
- c. Have each watchstander describe the "Controlling Actions" for thier watch area while the observer follows the written actions. Once the casualty is reported the Space Supervisor is responsible for initiating the "Controlling Actions" reporting to the EOOW and deciding when to take "Immediate Actions."
- d. After each watchstander has described thier "Controlling Actions" have the observer(s) read the actions that were either omitted or described incorrectly.
- e. Continue with the talk-through by having each watchstander describe the "Immediate Actions" for thier watch area.
- f. After each watchstander has described thier "Immediate Actions" have the observer(s) read the actions that were either omitted or described incorrectly.
- g. Have each watchstander refer to the Casualty Response Procedure for thier watch area and read aloud the "Supplementary Actions."
- h. When all "Supplementary Actions" have been talked-through, proceed to the "Restore Casualty" section and have each watchstander read thier step aloud.
- i. When the entire Casualty Response Procedure has been talked-through, discuss the entire procedure and resolve any questions or misunderstandings keeping the following things in mind:

PROCEDURE

- (1) A potential casualty must always be immediately reported to the Space Supervisor (when required), who reports to the EOOW. The EOOW, in turn, reports to the OOD, TAO or CSOOW (if necessary) and notifies all main engineering spaces.
- (2) A casualty which cannot be controlled or prevented requires that "Immediate Actions" be taken immediately to minimize damage to equipment and injury to personnel.
- (3) Actions taken during a casualty must be taken quickly, safely, simultaneously, and with control and supervision.
- (4) All required communications must be included in the talk-through.

5.3.5 CONDUCTING A WALK-THROUGH OF CASUALTY RESPONSE PROCEDURES

When all members of a watch team have talked-through a Casualty Response Procedure, the next step is to conduct a walk-through. In conducting a walk-through, the use of observers is the same. When conducting the walk-through, each watchstander, in addition to describing the "Controlling Actions" and "Immediate Actions" for thier watch area, simulates the actions by placing "hands-on" the various valves and/or control elements. In addition to determining how well the participating watchstander understands thier actions, the observer should also ensure that the correct action is being simulated.

Each Casualty Response Procedure will be walked-through until each member of the watch team has demonstrated the proper knowledge of the required actions for thier watch area.

5.3.6 HOT PLANT USE OF EOCC

When all members of a watch team have demonstrated the proper knowledge of all Casualty Response Procedures, the next step is to conduct Engineering Casualty Control exercises. All exercises will be imposed, observed and evaluated by the Engineering Training Team (ETT) as directed by the Engineer Officer.

The plant will be aligned in accordance with EOP when accomplishing casualty control drills.

Also, it should be noted that EOCC procedures are developed for actual casualties. Repeated imposition of these casualties and subsequent use of the EOCC procedures during training may cause damage to equipment. Because of this, some EOCC procedures should be walked-thru or simulated when training watchstanders in their use. Procedures for conducting training are promulgated by Fleet Commanders.

PROCEDURE

ETT should debrief the watch team with a step-by-step review of the Master EOCC. As each step is read by the ETT leader, ETT members should provide any comments they may have regarding watchstander actions for that step. These comments should identify root causes and the impact of the deficiency where possible. The comments are recorded on one drill critique sheet such that the full extent of watch section participation is captured. This summary can be reproduced and posted. Problems from the previous time can be reviewed by the ETT during the next debrief.

5.4 EOSS PROGRAM MANAGEMENT

For EOSS to be an effective program, watchstanders must understand its construction, be familiar with its contents from routine use and utilize it in all facets of training. The program must be administered with attention to detail and efficiency. All Engineering Department supervisors must be familiar with changes to EOSS and ensure watchstanders are trained in the new procedures as an item of priority. Each ship should develop an ongoing program of EOSS validation and feedback tracking. This program should include the following:

- Using the LOAD, periodically inventory the EOSS books to ensure all procedures are present, current, in order and in good condition.
- Periodically inventory of book holders to ensure they are undamaged and located IAW the Hardware Installation Plan (HIP).
- Ensure watchstanders are familiar with EOSS and use it for all aspects of all engineering operations and casualty control.
- Using personnel capable of recognizing problems, observe watchstanders performing EOSS evolutions
- Annotate MLOC with pre-lightoff PMS requirements.
- Report and resolve deficiencies uncovered when accomplishing MLOC.
- When the need for written procedures outside the scope of EOSS arises, develop local procedures and have them approved by the Commanding Officer.
- Supplement EOSS with standing orders, restricted maneuvering doctrine, main space fire doctrine, etc.
- Maintain an active, ongoing feedback program that is separate and distinct from PMS.

PROCEDURE

- Ensure feedbacks are clearly written and include technical documentation to support the recommended change.
- Ensure all pen and ink changes are authorized by the Commanding Officer.
- Ensure equipment and valve labels match EOSS.
- Brief all watchstanders upon receipt of EOSS changes.
- Appoint an EOSS coordinator that is independent of the 3-M coordinator.
- Ensure the master EOCC is available to all watchstanders.
- Debrief watch teams by referencing the master EOCC procedure.
- Submit routine EOSS feedbacks to correct deficiencies found anytime a discrepancy is found.

CHAPTER 6 EOSS FEEDBACK SYSTEM

6.1 INTRODUCTION

The EOSS Feedback System is the means by which you may make recommendations for changing your EOSS. Any Naval activity may originate these requests. The instructions given here cover the proper preparation and submission of feedback reports.

6.2 USING THE FEEDBACK SYSTEM

You must submit feedbacks to accomplish the following:

- a. Obtain replacement documents, covers, and twisties.
- b. Recommend approval of revisions for:
 - (1) Procedural changes to correct document errors.
 - (2) Configuration changes for authorized equipment or piping installations.

Feedbacks should not be submitted just because EOSS may conflict with other technical guidance since EOSS supersedes that guidance. An EOSS feedback should be submitted only when EOSS is suspected to be in error. A feedback on other documentation such as a technical manual should be submitted via its respective system.

6.3 MAKING LOCAL CHANGES TO EOSS

PROCEDURE

LOCAL CHANGES to EOSS are NOT AUTHORIZED except as described in Chapter 1. Only NSWCCD-SSES can approve and issue permanent changes to the NAVSEA installed EOSS.

6.4 URGENT FEEDBACK

An Urgent Feedback Report describes a technical discrepancy that could cause damage to equipment or injury to personnel. This category was established to provide rapid resolution to safety-related EOSS technical discrepancies.

6.4.1 URGENT FEEDBACK PREPARATION

Submit urgent feedbacks by priority message to NAVSURFWARCEN SHIPSYSENGSTA PHILADELPHIA PA. Information addressees shall include COMNAVSEASYS COM WASHINGTON DC and your Type Commander. They shall contain the following information (also see the User's Guide Appendix CP NO. DEUG):

- a. EOSS SSIC 9291
- b. A feedback number consisting of the year and the feedback's sequential position based upon urgent feedbacks you've submitted that year (e.g. 93-3).
- c. The code number of the EOSS procedure(s) involved (e.g. BLF/0021/052892).
- d. A detailed description of the problem.
- e. The recommended solution providing appropriate justification and citing any reference documentation.

NOTE: Review each urgent feedback to ensure that the feedback is a valid urgent submission as defined in paragraph 6.4.

6.4.2 URGENT FEEDBACK PROCESSING

Urgent feedback reports are processed as follows:

- a. The Commanding Officer authorizes a preliminary pen and ink change to EOSS pending official guidance from NSWCCD-SSES.
- b. NSWCCD-SSES provides guidance by message. This is accomplished in one to ten working days depending upon the complexity of the issue. TYCOM monitors/provides assistance as necessary.
- c. The Commanding Officer authorizes final pen and ink changes to EOSS in accordance with message guidance.

PROCEDURE

- d. If the required changes can be adequately detailed in the response, advance copy of revised documents will NOT be provided. Ships force makes pen & ink changes to all on station documents.
- e. If the required changes are too complex, NSWCCD-SSES will forward advance copy of revised documents within 15 working days of the guidance message.
- f. NSWCCD-SSES will forward final laminated documents as part of the ships next SAU.

6.5 ROUTINE FEEDBACK

A routine feedback may be one of two categories, A or B. Category A feedbacks are requests for EOSS materials. Category B feedbacks describe technical discrepancies that are not urgent. The recommended revision could be a change in the sequence of steps, an addition or deletion, a parameter change, or diagram change.

6.5.1 ROUTINE FEEDBACK PREPARATION

Submit routine feedbacks using Planned Maintenance System (PMS) forms, OPNAV 4790/7B. Each revision requested requires a separate form. If the same change is requested for several documents, it may be explained once and then all documents affected listed. Rearranging several steps in a document because of a single technical change counts as one revision. On the other hand, more than one technical recommendation in a single document requires more than one form. The printed information on the PMS form does not apply to EOSS. Maintain a separate EOSS feedback system. When using this form for EOSS the following instructions apply (also see the EOSS User's Guide Appendix CP NO DEUG):

- a. Fill in ship name and hull number in FROM block.
- b. In the SERIAL # block fill in a feedback number consisting of the year and the feedback's sequential position. Routine feedbacks must have a different set of feedback numbers than urgent feedbacks. Category A and B routine feedbacks should share the same set of numbers.
- c. In the DATE block fill in the date the feedback is to be mailed.
- d. In the TO block mark the appropriate square for category A or B feedbacks. For category A feedbacks write NSWCCD-SSES in the space provided.
- e. Mark the SUBJECT blocks as follows:
 - (1) In the SYSTEM block fill in either EOP or EOCC as appropriate.

PROCEDURE

(2) In the SYSCOM MIP block fill in the document code number (e.g. TG/0471/010592, HBWL/0099/092391, etc.).

(3) Leave the APL and SYSCOM MRC blocks blank.

f. Leave the DESCRIPTION OF PROBLEM blocks blank except when you are commenting on a procedure that has not been finalized for your use. In that case mark the OTHER blocks with the words, "Hot Check". Examples when this would apply includes a package that has been hot checked but not approved and installed, or a package that belongs to another ship of the class, prior to one ship's EOSS development.

NOTE: Category "A" feedbacks can be submitted via the internet by visiting the EOSS Homepage at <http://eoss.navsses.navy.mil>

g. Fill in the REMARKS section as follows:

(1) For category A feedbacks be specific.

(a) Documents; specify code number(s) of document(s) needed and the number of laminated and unlaminated copies.

(b) Covers; specify type (EOP and/or EOCC) and number of each requested.

(c) Twisties; specify size (4-3/4", 5-3/4", 8") and number of each requested.

(2) For category B feedbacks be as clear as possible. The more precise you are, the faster a response can be generated.

(a) Identify the location of the problem in the EOSS document.

(b) Describe the problem and recommend a solution.

(c) Reference the justification for the change where applicable. Provide a copy of the reference pages that support your recommendation.

(d) Using the CD-ROM, print the procedure and mark it up to reflect your recommendation. Attach it to the 4790/7B form. Do not use a yellow marker because it will not photocopy. Do not obscure the original text.

PROCEDURE

- h. In the signature blocks, indicate the person who would serve as the best point of contact with an asterisk*. Make sure that name is legible and includes a phone number when possible. The 3-M COORDINATOR block shall be signed by the EOSS Coordinator.

NOTE: The EOSS feedback system shall be separate from the PMS System.

- i. Distribute the feedback copies as follows:
 - (1) White and yellow copies to NSWCCD-SSES for both category "A" and category "B" feedbacks. The white copy will be returned with the requested material for category A feedbacks. No copies will be returned for category B feedbacks.
 - (2) Pink copy to the appropriate Type Commander.
 - (3) Blue retained by the EOSS Coordinator.
 - (4) Green to the originating work center.

NOTE: Sending the white copy to any organization other than NSWCCD-SSES Code 943 will result in a longer time to receive a response.

6.5.1.1 BOOKHOLDERS

Bookholders are now available through the stock system and may be ordered as follows:

- a. Rack Distributor (Single-OSS Type D MOD1) NSN 9Q 7520-01-433-7733
- b. Rack Distributor (Double-OSS Type D MOD2) NSN 9Q 7520-01-433-7734

6.5.2 ROUTINE FEEDBACK PROCESSING

Feedbacks are processed as quickly as possible. Generally, the more comprehensively prepared a feedback is, the easier it is to answer. Do all the homework you can before sending it in.

- a. Category A feedbacks are sent to NSWCCD-SSES. The items requested will be forwarded within 21 working days of receipt.
- b. Category B feedbacks are also sent to NSWCCD-SSES. When NSWCCD-SSES answers these feedbacks, there are 3 possible responses.

PROCEDURE

- (1) Concur. Advance/marked-up copies of the revised document(s) will be forwarded within 21 working days of receipt. Final copies will be forwarded with your SAU or within 2 months for ships not in the SAU program.
- (2) Do not concur. An explanation of the reason for non-concurrence will be forwarded within 21 days of receipt.
- (3) Other. Advance and final copies will be forwarded as with concur items. An explanation of the partial concurrence will accompany the advance copies.

6.5.3 POINTS OF CONTACT

NSWCCD-SSSES	NAVSEA
ATTN: Code 943	Naval Sea Systems Command (04L1)
5001 S. Broad St.	1333 Isaac Hull Avenue, S.E.
Philadelphia, PA 19112-5083	Washington Navy Yard, D.C. 20376
COMNAVSURFLANT	COMNAVSURFPAC
Commander Naval Surface Force	Commander Naval Surface Force
U.S. Atlantic Fleet, Code N722	U.S. Pacific Fleet, Code N825A
1430 Mitscher Avenue	2421 Vella Lavella Rd
Norfolk, VA 23551-2494	San Diego, CA 92155-5490
COMNAVAIRLANT	COMNAVAIRPAC
Commander Naval Air Force	Commander Naval Air Force
U.S. Atlantic Fleet, Code N7	U.S. Pacific Fleet, Code N7
Norfolk, VA 23511-5188	Naval Air Station, North Island
	San Diego, CA 92135
COMSUBLANT	COMSUBPAC
Commander Submarine Force	Commander Submarine Force
U.S. Atlantic Fleet, Code N46	U.S. Pacific Fleet, Code N422
7958 Blandy Rd	100 Morton St., Bldg. 19
Norfolk, Va 23551-2492	Pearl Harbor, HI 96860
COMNAVSPECWARCOM	COMMINEWARCOM

PROCEDURE

Commander Officer	Commander
Naval Special Warfare Command (N91)	Mine Warfare Command
NAB Coronado Bldg 64	325 5th Street SE
2000 Trident Way	Corpus Christi, TX 78419-5022
San Diego, CA 92155-5037	

6.5.4 INTERNET ACCESS

NSWCCD-SSES has implemented a Home Page on the INTERNET. This Home Page will be used to provide the Fleet with up to date information on the EOSS program. Some of the things available are as follows:

- a. An electronic mail system for communicating with NSWCCD-SSES
- b. A method for requesting replacement documentation (category "A" feedbacks).
- c. Status of updated EOSS packages for a ship.
- d. Software updates for CD's, etc..
- e. Phone listing for EOSS personnel.
- f. Other EOSS related issues.

This Home Page can be accessed using the following URL address:
<http://eoss.navsses.navy.mil>

6.6 LIST OF APPLICABLE DATES (LOAD)

List Of Applicable Dates reports are distributed as part of each revision. They list the most current book indexes by book number, date of book index and applicable watch station(s). Compare the dates of the index pages in your on-station books with the dates listed in the current LOAD. Then compare the actual documents with those listed on your index page.

If you find an inconsistency when comparing the dates on the LOAD with the actual dates on the index pages, submit a routine feedback identifying the problem. The correct index pages and documents will then be forwarded. If you find an inconsistency when comparing the actual procedures to the current index, submit a routine feedback identifying which documents require replacement. Keep in mind that your most recent LOAD may contain revisions dated within the three months that are still being printed. They should arrive shortly.